

Friday, March 19, 2004

MARTIAN AEOLIAN AND MASS WASTING PROCESSES: BLOWING AND FLOWING
8:30 a.m. Salon B

Chairs: D. M. Burr
J. M. Moore

- 8:30 a.m. Geissler P. E. *
Three Decades of Martian Surface Changes [#2017]
The face of Mars has changed dramatically during the three decades spanned by spacecraft exploration. Such albedo changes could produce significant effects on solar insolation and the global circulation of winds on Mars.
- 8:45 a.m. Murphy N. * Hynek B. M. Jakosky B. M. Martínez-Alonzo S. Putzig N. E.
Mellon M. T. Pelkey S.
Thermophysical Properties of Isidis Basin, Mars [#1797]
We examined the thermophysical properties of Isidis with THEMIS and TES data. Despite a relatively flat topography, Isidis shows a dramatic range of thermal inertias and nighttime temperatures suggesting that aeolian activity played a significant role in the redistribution of particulates.
- 9:00 a.m. Fergason R. L. * Christensen P. R.
Intracrater Material in Eastern Arabia Terra: THEMIS, MOC, and MOLA Analysis of Wind-blown Deposits and Possible High-Inertia Source Material [#1710]
Intracrater deposits in eastern Arabia Terra contain sand-sized particles and high-inertia outcrops with no detectable accumulation of dust. This observation challenges the hypothesis that dust is currently collecting in this region.
- 9:15 a.m. Fenton L. K. * Fergason R. L.
Thermal Properties of Sand from TES and THEMIS: Do Martian Dunes Make a Good Control for Thermal Inertia Calculations? [#1974]
TES and THEMIS thermal inertias reveal spatial variations within a martian dune field, showing patterns that must be examined and understood before dune sand can be used as a control value or a basis for comparison in thermal studies of other areas.
- 9:30 a.m. Bourke M. C. * Balme M. Zimbelman J. R.
A Comparative Analysis of Barchan Dunes in the Intra-Crater Dune Fields and the North Polar Sand Sea [#1453]
Contrasting wind, sediment and frost precipitation regimes contribute to different dune scale and form on Mars. Isolated barchans in the NPSS are smaller but assume a classic barchan form. Intra-crater barchans are larger and more variable in form.
- 9:45 a.m. Burr D. M. * Carling P. A. Beyer R. A. Lancaster N.
Diluvial Dunes in Athabasca Valles, Mars: Morphology, Modeling and Implications [#1441]
We took photoclinometric measurements of transverse bedforms in Athabasca Valles. The resultant profiles and other evidence indicate the forms are diluvial dunes. From the morphology of these forms, we estimated the discharge that formed them.
- 10:00 a.m. BREAK
- 10:15 a.m. Metzger S. M. * Balme M. Greeley R. Ringrose T. Towner M. Zarnecki J.
Surface Profiling of Natural Dust Devils [#2063]
We present results from the first high-resolution near-surface profiles conducted on dust devil wind fields. These results are integrated with extensive geologic mapping to understand the factors that influence vortex generation and erosive efficacy.

- 10:30 a.m. Whelley P. L. * Greeley R. Neakrase L.
Martian Dust Devil Tracks: Inferred Directions of Movement [#1560]
A laboratory simulation of dust devil tracks giving insight into directionality of track morphologies.
- 10:45 a.m. Miyamoto H. * Dohm J. M. Beyer R. A. Baker V. R.
Numerical Simulations of Anastomosing Slope Streaks on Mars [#1287]
A viscoplastic numerical model shows that anastomosing slope streaks have quite fluid rheology and short duration times. Slope streaks can have complex origins from dust avalanching to aqueous processes as endpoint.
- 11:00 a.m. Williams R. M. E. * Edgett K. S. Malin M. C.
Young Fans in an Equatorial Crater in Xanthe Terra, Mars [#1415]
High-resolution MOC images of an unnamed, ~60-km-diameter crater in Xanthe Terra reveal well-preserved landforms similar in planimetric form and morphology to alluvial fans of arid environments such as the Mojave Desert of southern California.
- 11:15 a.m. Moore J. M. * Howard A. D.
Large Well-exposed Alluvial Fans in Deep Late-Noachian Craters [#1443]
Well-exposed alluvial fans are found in only <5% of all craters >70 km in diameter within a large study region. They have morphologies consistent with debris-flow-dominated fans. They may have formed during the last warmer, wetter climate optima.
- 11:30 a.m. Bulmer M. H. * Zimmerman B. A.
New Evidence for the Formation of Large Landslides on Mars [#1270]
MGS and Odyssey data show new details of the processes that govern the triggering, failure, and deposition of landslides. Here we report on analysis of a landslide site on the southern wall of Gangis Chasma in the Valles Marineris.
- 11:45 a.m. Quantin C. * Mangold N. Allemand P. Delacourt C.
What Can We Learn from the Ages of Valles Marineris Landslides on Martian Impact History? [#1277]
The temporal distribution of Martian landslides has an increasing exponential trend. This trend could translate a decrease by a factor of 3 of the impact flux during the last 3 Gy.